

Robert Bosch Tool Corporation

Department for Environmental Protection
Kentucky Division of Waste Management

November 3, 2016

Presented by Chris Jung



To Protect and Enhance Kentucky's Environment

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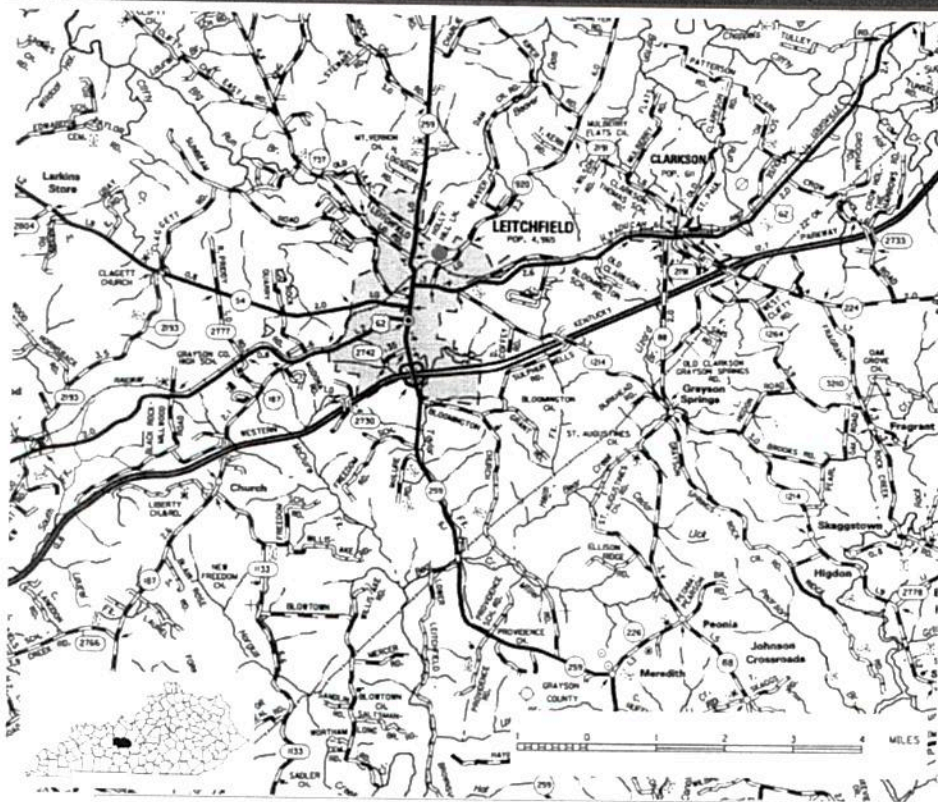
Site Location



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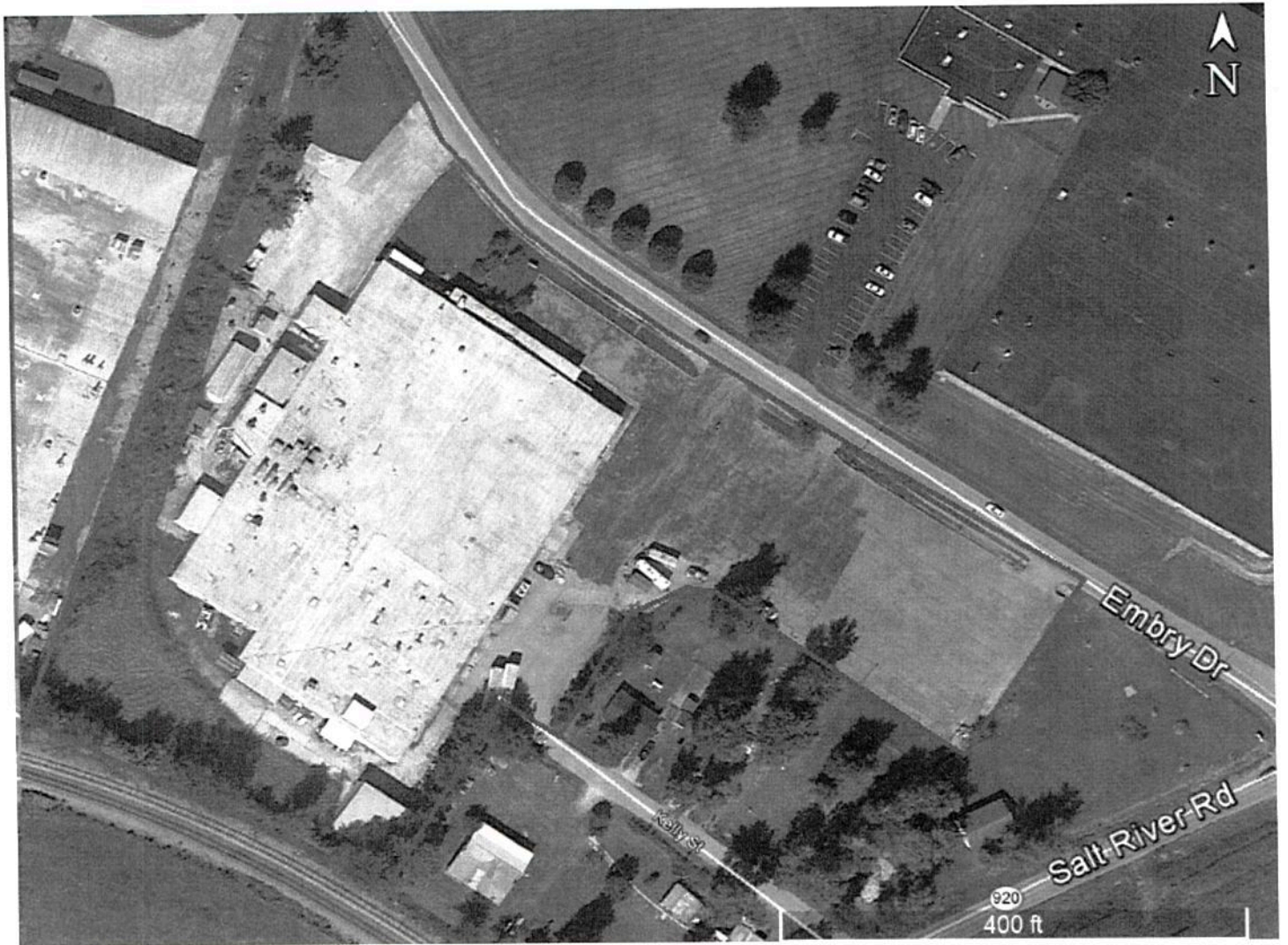


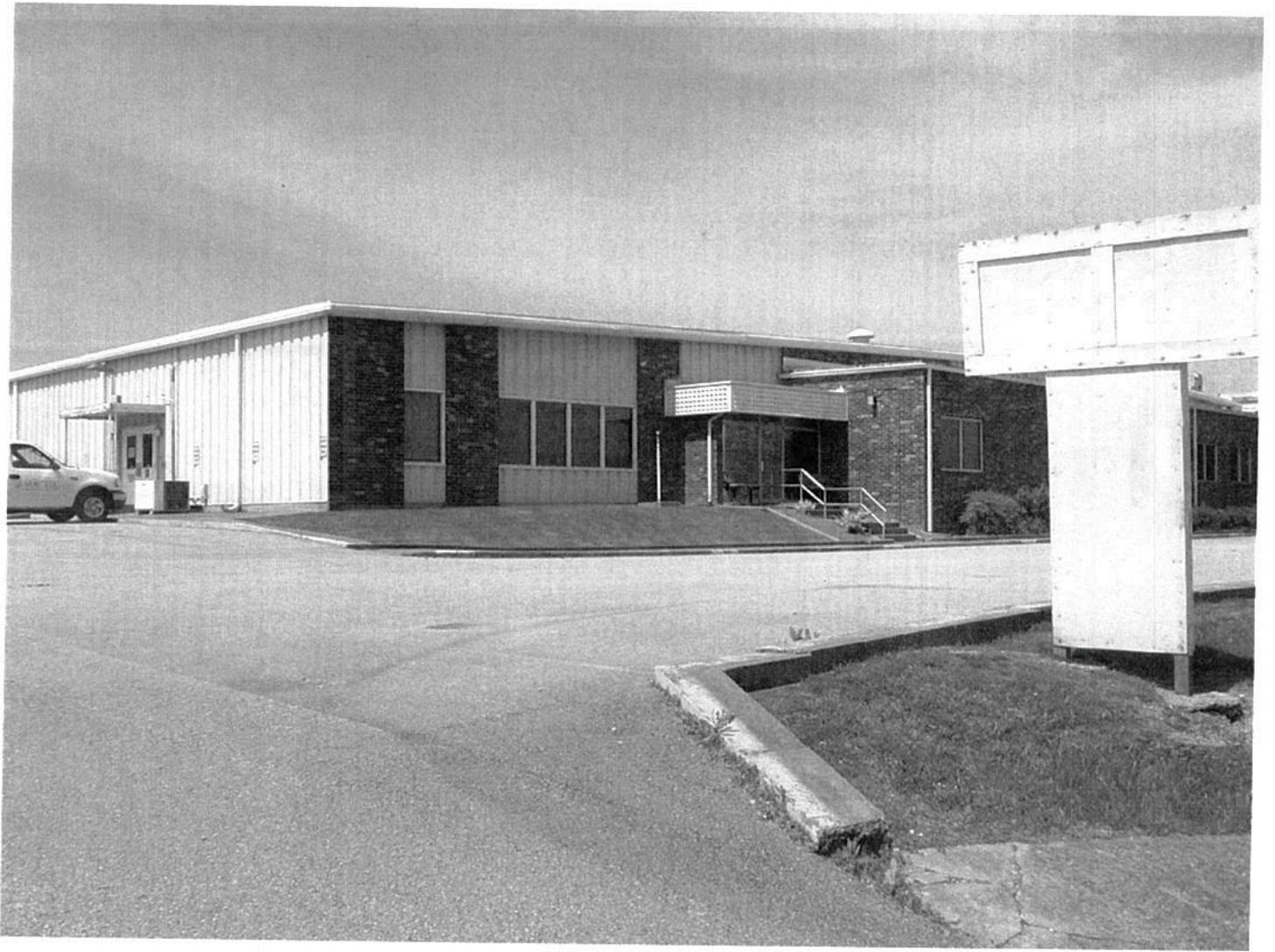
Bosch Tool

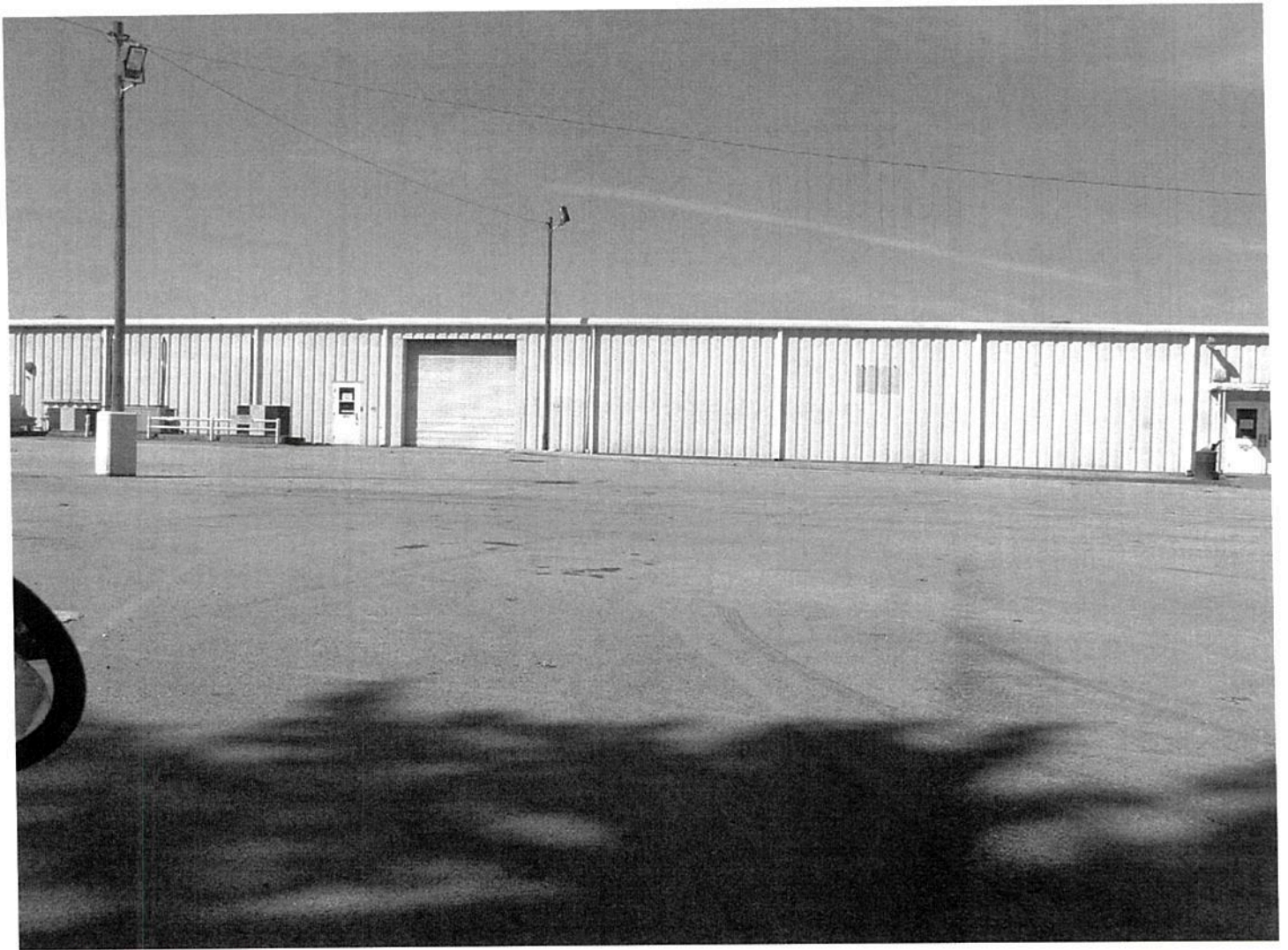


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History of the Facility



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HISTORY OF FACILITY

- In 1970, Vermont American Corporation manufactured screw driver bits, drill bits, circular saw blades, and hedge trimmers (1986 to 1996).
- In 1974, Bosch expanded the building from 43,000 to 86,000 square feet.
- In 1989, the Vermont American Corporation was acquired by the Robert Bosch Corporation and Emerson Electric and officially became the Robert Bosch Tool Corporation in 2003.
- In 2004, Bosch Tool ceased all production at the Leitchfield facility and it was unoccupied until 2010.
- In 2010, the property was sold and is currently used as a storage warehouse.



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PRIMARY WASTES GENERATED AT THE FACILITY

- Trichloroethylene (TCE)
- 1,1,1,-Trichlorethane (111-TCA)
- Chrome and Nickel Plating Sludges
- Sodium Hydroxide (NaOH)
- Potassium and Sodium Nitrate



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Initial Environmental Investigations

- In 1991, excavation material impacted by TCE was discovered. Fifty tons of material was excavated and disposed of offsite.
- In 2004, phase I and II environmental investigations were performed. The phase II concluded that exceedances in the soil and groundwater were present.



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Groundwater Investigation



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Groundwater Chemicals of Concern

- Trichloroethylene (TCE)
- Cis-1,2-Dichloroethene (cis-1,2 DCE)
- Vinyl Chloride (VC)



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Groundwater Investigation

- 38 permanent monitoring wells
- 12 remediation test wells
- 3 former water supply wells:
 - PW-1
 - PW-2
 - Kiper Well (offsite)



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Groundwater Sampling Results

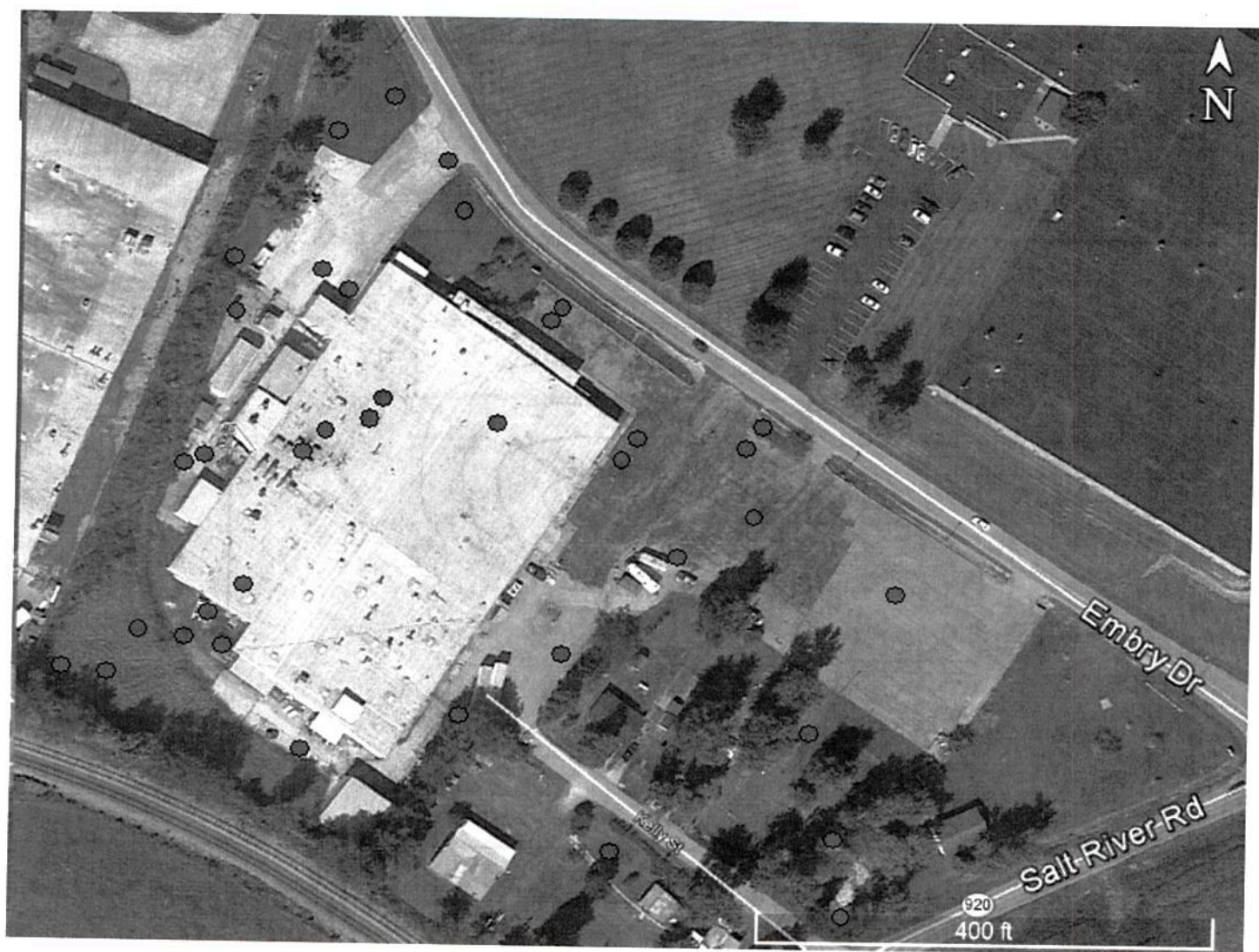
The highest recorded monitoring well concentrations during the November 2015 sampling event were found in MW-5/MW-5M:

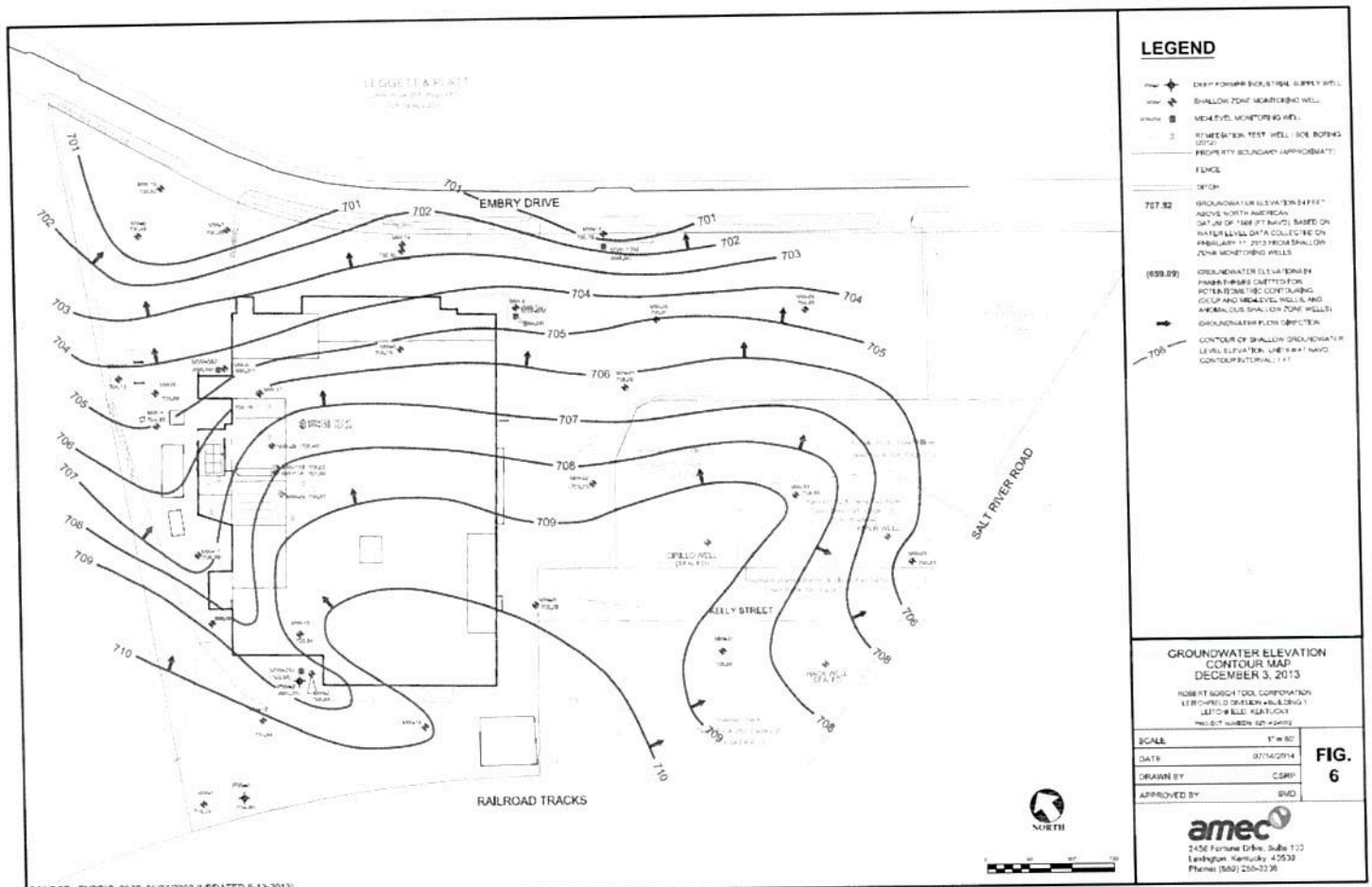
- TCE at 2.77 ppm (MCL .005 ppm)
- cis-1,2-DCE at 2.09 ppm (MCL .07 ppm)
- VC at 1.79 ppm (MCL .002 ppm)



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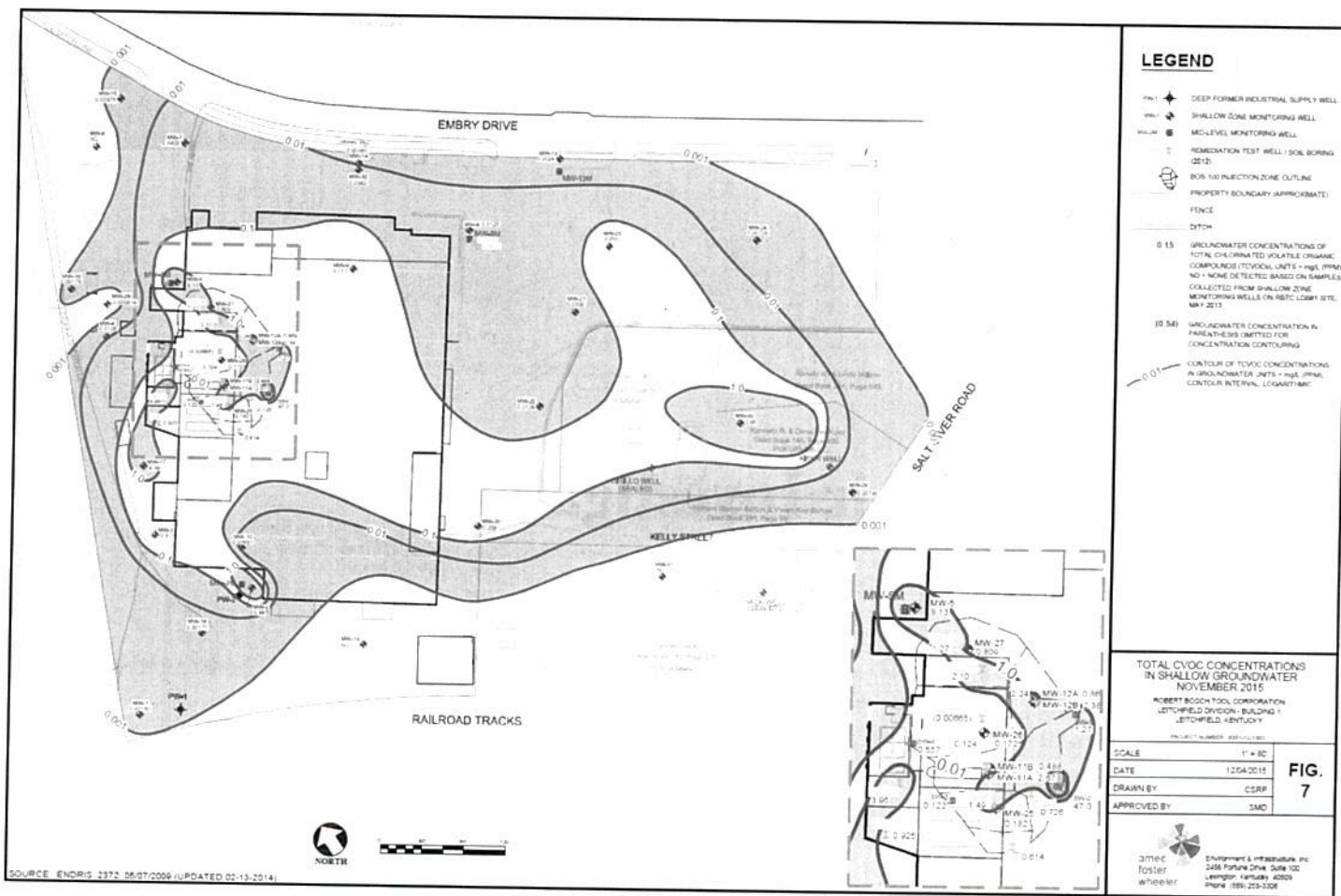






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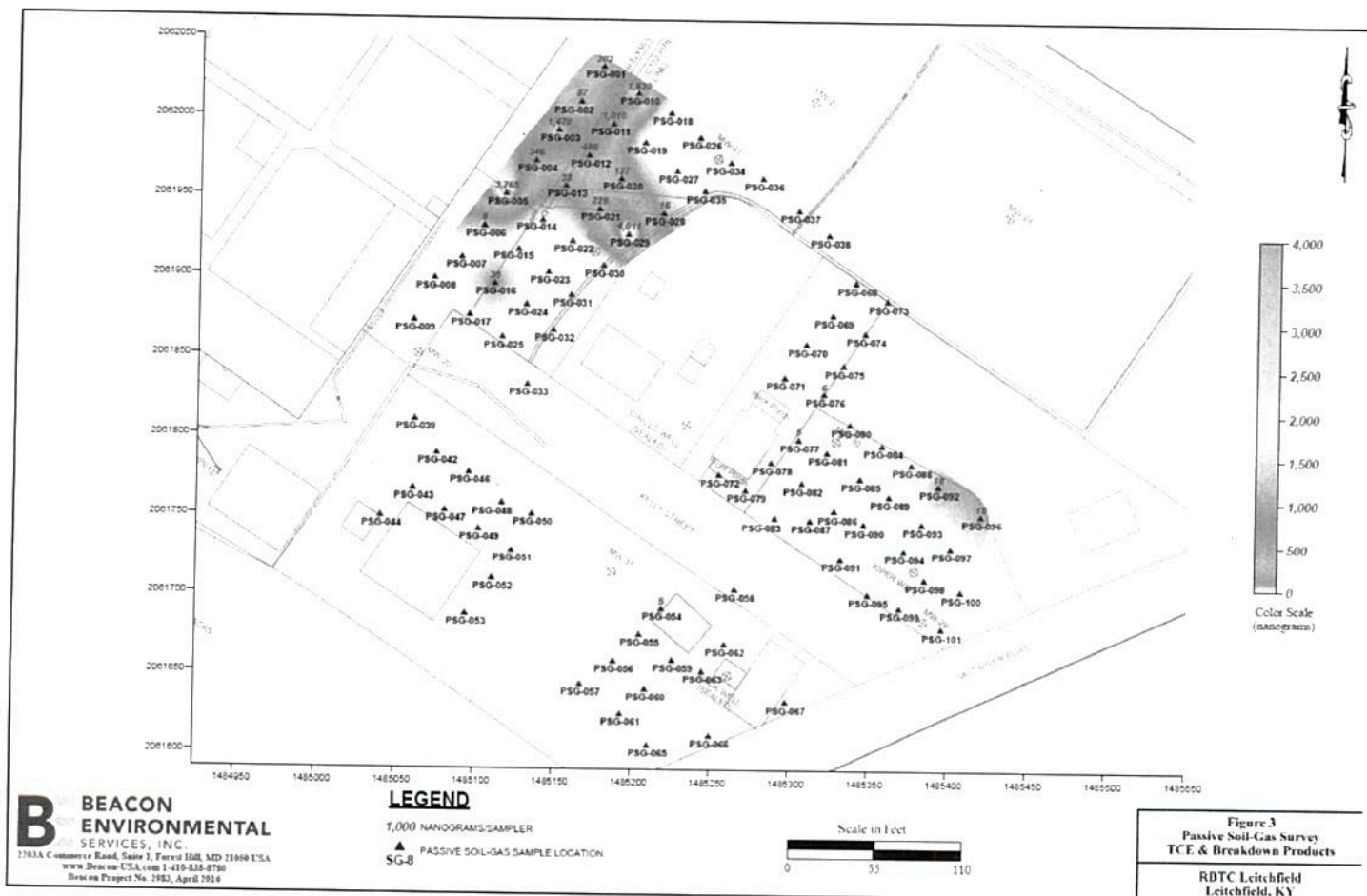


Air Investigation



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Crawl Space Air Sampling

- In 2012, crawl space sampling was conducted at the Barton property.
- Three locations were selected, and an 8-hour test was conducted.
- The highest recorded sample result was $2.0 \mu\text{g}/\text{m}^3$ TCE.
- Highest follow-up results was $.83 \mu\text{g}/\text{m}^3$.

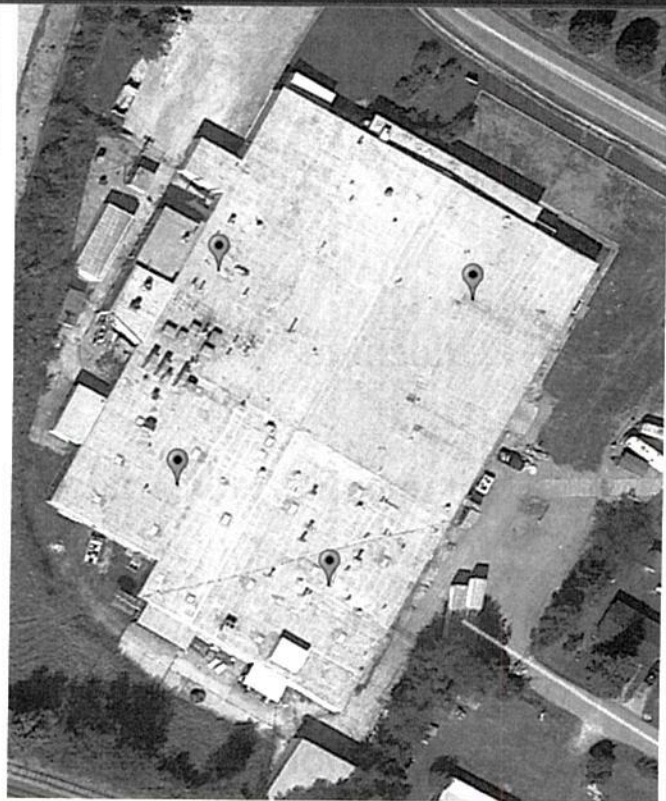


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Indoor Air Facility Samples

- Four locations were selected, and an 8-hour test was conducted.
- The highest recorded sample result was $13.4 \mu\text{g}/\text{m}^3$ TCE.



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Trichloroethylene (TCE)

- EPA Region 9 Interim TCE Indoor Air Response Levels:

➤ Residential $2 \mu\text{g}/\text{m}^3$

➤ Commercial/Industrial $7 \mu\text{g}/\text{m}^3$
(10-hour workday)

➤ Commercial/Industrial $8 \mu\text{g}/\text{m}^3$
(8-hour workday)



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Remediation



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Remediation

- Based on the elevated sample results, Bosch Tool implemented remediation in 2012.
- Injection of a reductive dechlorinator (BOS 100) into source area.
- Injection of biostimulates (3DMe) into less concentrated plume area.



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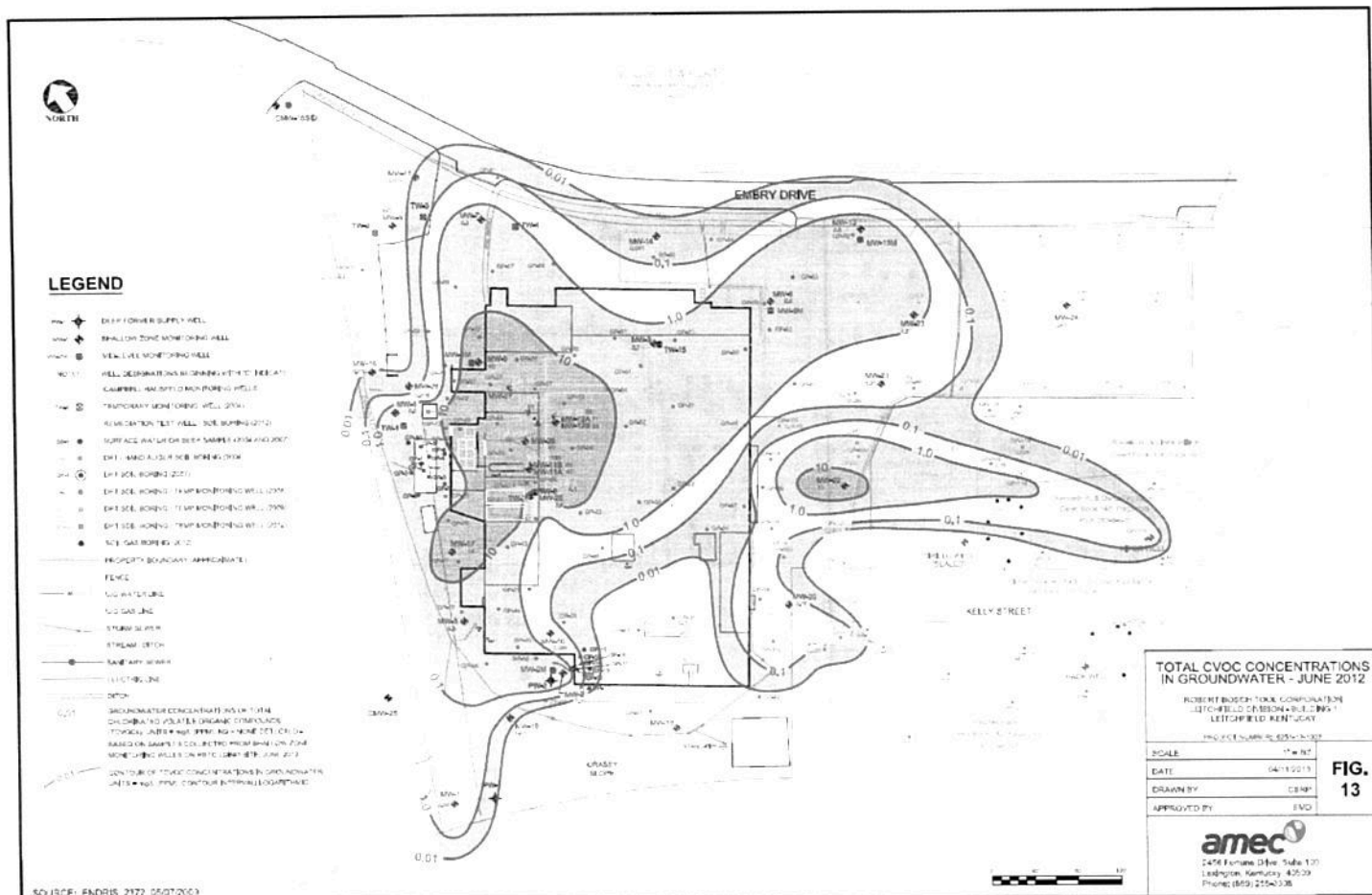
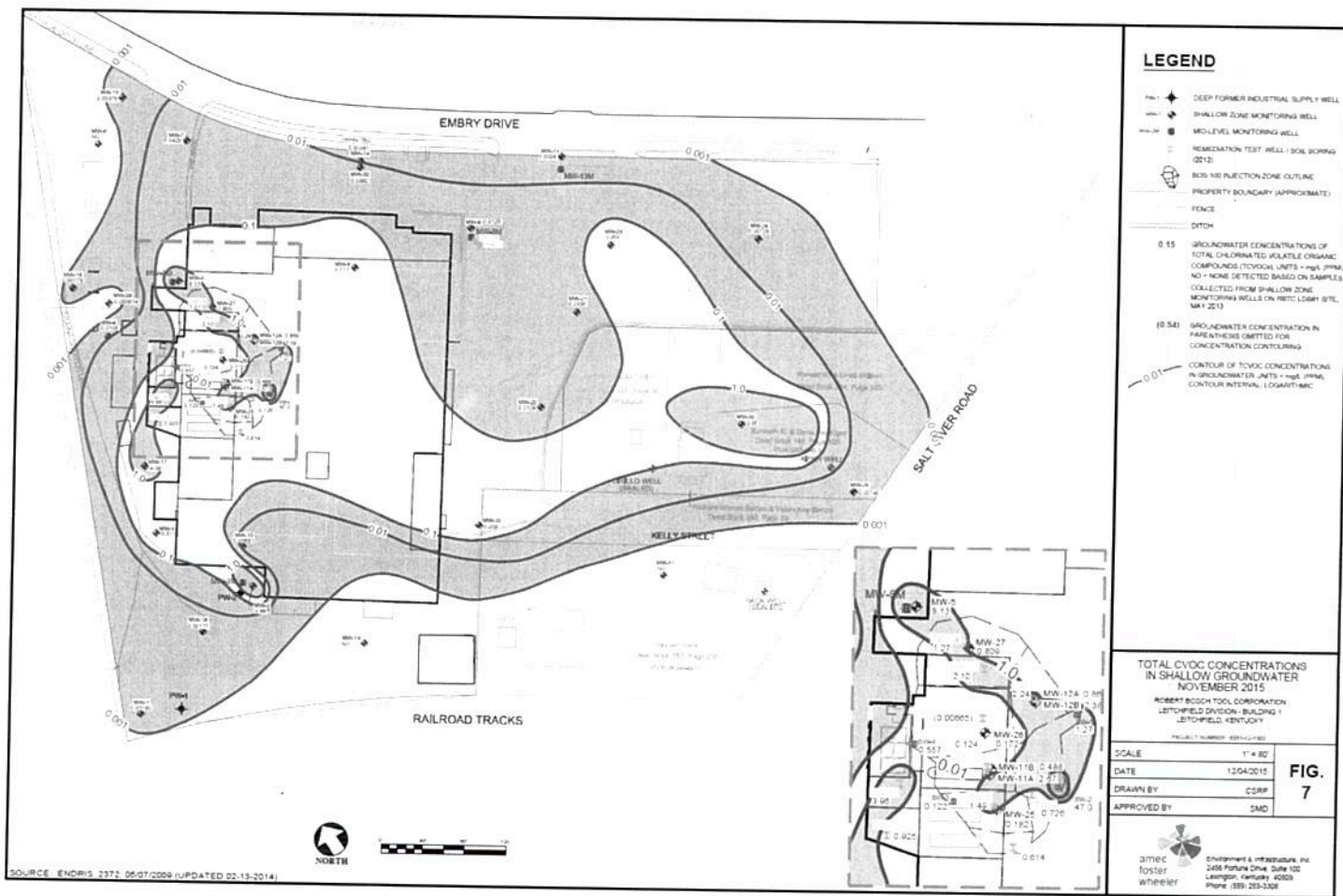


FIG. 13



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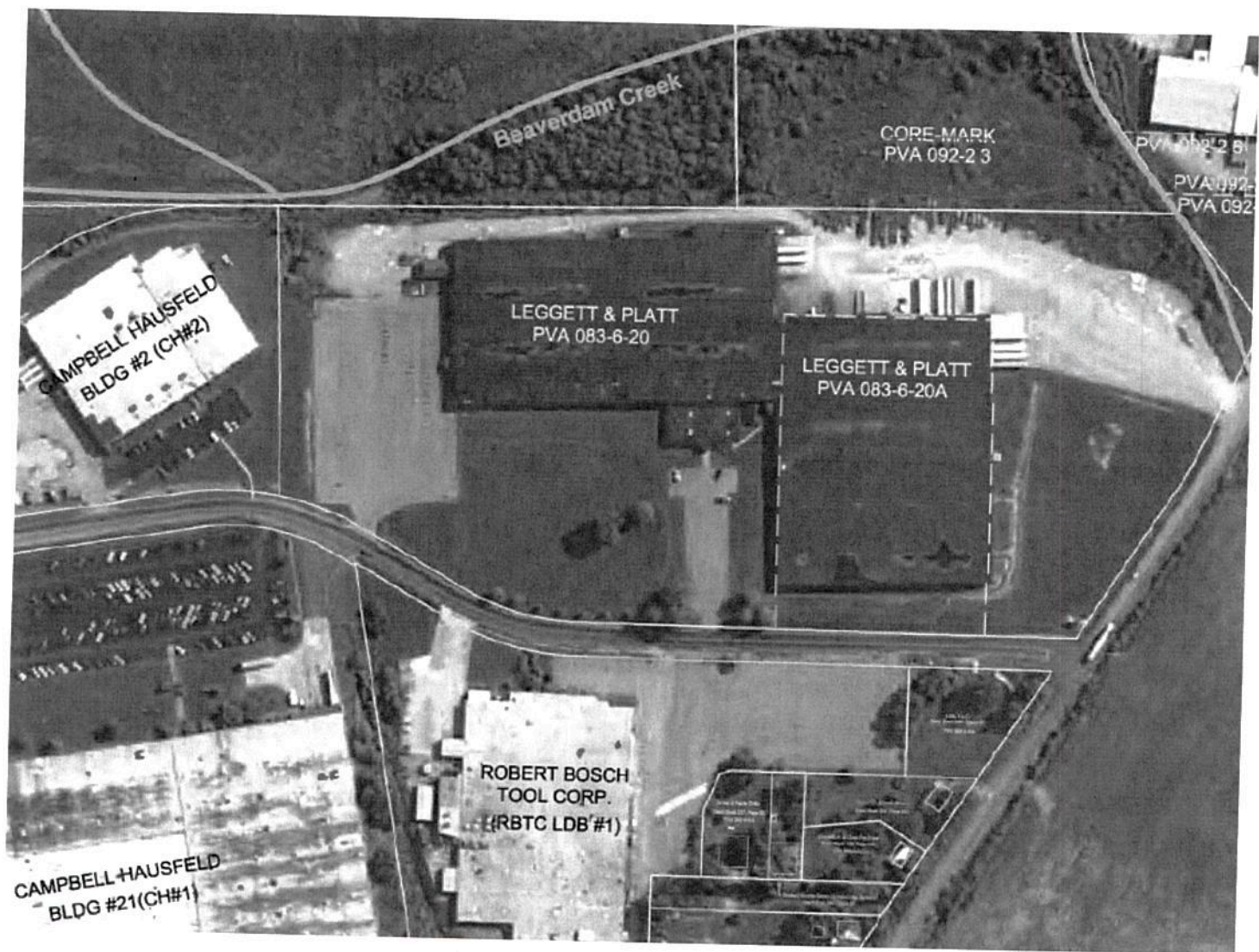


Next Phase



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Grayson County Public Library

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